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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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BARRY W. CHAPIN
CHAPIN INTELLECTUAL PROPERTY LAW, LLC
WESTBOROUGH OFFICE PARK
1700 WEST PARK DRIVE, SUITE 280
WESTBOROUGH, MA 01581

EXAMINER	
WAI, ERIC CHARLES	
ART UNIT	**PAPER NUMBER**
2195	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/675,220	SHMUYLOVICH ET AL.	
	Examiner	Art Unit	
	ERIC C. WAI	2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *36-56* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *36-56* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 36-56 are presented for examination.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 36-56 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. The following terms are not clearly understood:

i. Claim 36 lines 25-27 recite, "the recently assigned agent condition defining an acceptable number of agents assigned to the first store process during a predetermined assignment interval". It is unclear why the condition defines an acceptable number of agents for the store process since the condition causes the invention to select a process other than the first store process whenever the recently assigned agent condition is first applied (lines 28-31). It is also unclear whether lines 25-27 imply that multiple agents can be assigned to a single store process.

ii. Claims 46 and 56 are rejected for the same reasons as claim 1 above.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 36-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oliveira (US Pub No. US 2004/0186904 A1) in view of Sayan et al. (US PG Pub No. US 2002/0169820 A1 hereinafter Sayan), in view of Brenner et al. (US Pat No. 6,658,449 hereinafter Brenner), further in view of Liu (US Pat No. 5,825,759).

6. Regarding claim 36, Oliveira teaches a method for processing information in a management application, the method comprising the steps of:

receiving at least one first store assignment request ([0025], “new processing task”);

receiving load information from a plurality of processor, the load information indicating a relative processing load for respective processor in the plurality of processor ([0025], where in the utilization information is analyzed);

assigning a first processor from the plurality of processors for the first agent to use to perform the agent transaction based on a processor availability of the first processor ([0025], wherein the task is assigned to a specific processor that can handle the task).

7. Oliveira does not teach that the store assignment request originates from an agent that has an agent transaction for processing management data into a managed data object, the management data collected by the first agent. Oliveira deals with load balancing of conference calls in a VOIP system. It would have been obvious to one of ordinary skill in the art that the system users that initiate the calls or tasks of Oliveira's system, is equivalent to the agents. Furthermore, one of ordinary skill can interpret the agents of Applicant's invention as programs or threads that make requests (agent transactions) to be executed.

8. Oliveira does not teach that the processors are store processes. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Oliveira's processors to use a store process. It is well known in the art that a store processes is equivalent to a node or a processor used to execute tasks or processes.

9. Oliveira does not teach the step of identifying a non-available store condition when the load information is not within an acceptable threshold load factor range. However, Oliveira's system ensures that the processing of tasks does not cause overloading ([0026]). It would have been obvious to one of ordinary skill to identify a condition when all processors are overloaded (i.e. not within an acceptable threshold load factor range).

10. Oliveira does not teach that during the non-available store condition, maintaining an agent wait table containing agent entries and identifying agents as non-responding

when no store assignment requests have been received from those agents for a predetermined agent timeout period.

11. Sayan teaches a method using a pool of agents to handle client transactions ([0013]), where idle agent processes are terminated when such agents are idle for more than a predetermined period of time ([0143]).

12. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Oliveira to use agents to handle transactions and identify when such agents are non-responsive. One would be motivated by the desire to make more efficient use or resources (Sayan [0012]) and recycle resources utilized by unresponsive agents.

13. Oliveira and Sayan do not teach that maintaining an agent wait table comprises; each agent in the agent wait table identifying corresponding wait times for agents that have supplied store assignment requests for processing an agents transaction with one of the plurality of the store processes.

14. Brenner teaches the use of a starvation load balancing technique that tracks waiting threads (col 8 lines 4-10). It would have been obvious to one of ordinary skill in the art at the time of the invention to include tracking each request according to its wait time. One would be motivated by the desire to ensure the requests are processed in a timely manner.

15. Oliveira also does not teach that after assignment of the first processor for the first agent to use, establishing a recently assigned agent condition associated with the first processor, the recently assigned agent condition defining an acceptable number of agents assigned to the first processor during a predetermined agent assignment interval, whereby: if the recently assigned agent condition associated with first processor is still established, selecting a processor from the plurality of processors for processing a second agent transaction other than the first store process to which the recently assigned agent condition applies; and clearing the recently assigned agent condition after the predetermined agent assignment interval has elapsed.

16. Liu teaches a method of utilizing a mobile floating agent protocol wherein a timer and a least recently used parameter are set for each agent (col 7 lines 47-50). Liu teaches that upon expiration of a timer, the agent is deactivated to free up resources (col 8 lines 48-59). Liu also teaches the use of a least recently used parameter to track usage of agents in order to reclaim resources (col 8 line 60 to col 9 line 2).

17. It would have been obvious to modify Oliveira to utilize a recently used condition along with each store process. One would be motivated by the desire to track the use of store processes in order to evenly distribute the agents so as to not overwhelm a particular process.

18. Regarding claim 37, Oliveira teaches determining processor availability of the plurality of processors based on the received load information comprises:

for each processor of the plurality of processors:

i) if the load information for that processor is within an acceptable threshold load factor range, identifying that processor as an available processor within the plurality of processors ([0027] wherein a processor does not issue an alert to the controller to signal that it is overloaded); and

ii) if the load information for that processor is not within the acceptable threshold load factor range, identifying that processor as an unavailable processor within the plurality of processors ([0027] wherein a processor issues an alert to the controller to signal that it is overloaded).

19. Regarding claim 38, Brenner teaches that if a wait time for an agent identified in an agent entry in the agent wait table exceeds an agent wait threshold, identifying that agent entry in the agent wait table as a starving agent entry (col 8 lines 14-16).

20. Regarding claim 39, Oliveira, Sayan, Brenner, and Liu teach assigning a processor of the plurality of processors for the agent to use to perform the transaction based on the determined processor availability comprises:

if there is at least one starving agent entry identified in the agent wait table, and if the store assignment request is received from an agent associated with a starving agent entry, and if there is at least one processor of the plurality of processors that is identified as an available processor (Brenner col 8 lines 16-19, wherein the dispatcher identifies starving threads), then:

i) assigning an available processor of the plurality of processors that has the most favorable load information as a selected processor for use in processing the agent transaction for the agent identified in the starving agent entry in the agent wait table (Oliveira [0025]); and

ii) forwarding a store assignment response identifying the selected processor to the agent providing the store assignment request corresponding to the starving agent entry in the agent wait table (Oliveira Fig 3, 340); and

iii) removing the starving agent entry from the agent wait table (Brenner, col 8 lines 16-19, wherein the thread is removed from the queue).

21. Regarding claim 40, Oliveira, Sayan, Brenner, and Liu do not explicitly teach that assigning a processor of the plurality of processors for the agent to use to perform the transaction based on the determined processor availability comprises:

if there is at least one starving agent entry identified in the agent wait table and the store assignment request is received from an agent that is not associated with a starving agent entry, then:

i) updating the agent entry associated with the agent that provided the store assignment request in the agent wait table to indicate receipt of the store assignment request; and

ii) skipping assignment of an available processor to the agent that provided the store assignment request in order to wait for receipt of a store assignment request from an agent associated with a starving agent entry in the agent wait table.

22. However, it would have been obvious to one of ordinary skill in the art to include the updating of each agent entry upon receiving a new store assignment request and skipping assignments to agents not on the starvation list. One would be motivated by the desire to continually updated the wait table to track new requests and give priority to starving agents as taught by Brenner (col 8 lines 20-25).

23. Regarding claim 41, Oliveira, Sayan, Brenner, and Liu do not teach identifying when an agent entry in the agent wait table has received no store assignment requests for a predetermined agent timeout period and in response, identifying the agent entry associated with that agent in the agent wait table as a non-responding agent.

24. It would have been obvious to one of ordinary skill in the art at the time of the invention to include marking non-responding agents. One would be motivated by the desire to focus the system resources on agents that are actively making requests.

25. Regarding claim 42, Oliveira teaches assigning a processor of the plurality of processors for the agent to use to perform the transaction based on the determined processor availability comprises:

determining if there is at least one processor of the plurality of processors that is identified as an available processor (Fig 3, 330), and if so:

i) assigning a processor of the plurality of processors that has the most favorable load information as a selected processor for use in processing the agent transaction for the agent (Fig 3, 340)

ii) forwarding a store assignment response identifying the selected processor to the agent providing the store assignment request (wherein it is inherent that some response must be sent to indicate the coupling of request to processor).

26. Regarding claim 43, Oliveira teaches repeating receiving load information, determining processor availability, receiving a store assignment request from an agent and assigning a processor such that, over time, assignment of processors to handle processing of agent transactions is load balanced across the plurality of processors based on the load information from the processors ([0007]).

27. Regarding claim 44, Oliveira teaches that the load information received from the plurality of processor includes a current collective transaction weight of all currently assigned transactions for each processor ([0022], wherein the CPU utilization information can include the number of conferences or participants); and

the store assignment request received from the agent has an associated transaction weight of the agent transaction to be performed with a processor ([0026], wherein the amount of processing required to support the new task is determined);

and wherein assigning a processor of the plurality of processors for the agent to use to perform the agent transaction comprises:

for each available processor, calculating a new collective transaction weight as a sum of the current collective transaction weight and the transaction weight of the agent

transaction to be performed with a processor ([0026], wherein the system determines whether the new task can be supported);

determining if there is at least one processor of the plurality of processors that has a new collective transaction weight that is within an acceptable collective transaction-weight ([0026], wherein the system determines whether the new task will overload the processor), and if so:

i) assigning a processor of the plurality of processors that has the new collective transaction weight that is within an acceptable collective transaction weight as a selected processor for use in processing the agent transaction for the agent ([0026], wherein the task is assigned); and

ii) forwarding a store assignment response identifying the selected processor to the agent providing the store assignment request ([0026], wherein an acknowledgement must be sent).

28. Regarding claim 45, Oliveira, Sayan, Brenner and Liu do not teach that the management application is a storage area network management application;

the store assignment requests are received from agent processes operating on host computer systems in the storage area network that collect management data on behalf of managed entities associated with the agent processes, the agent processes transferring the management data within agent transactions to processors to which they are assigned; and

the plurality of processors operate to process the agent transactions to store the management data into a management database on behalf of the plurality of agent processes.

29. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Oliveira for use in a storage area network management application. One would be motivated by the desire to extend the teachings of Oliveira for purposes of managing a storage area network.

30. Regarding claims 46-55, they are the computer system claims of claims 36-45 above. Therefore they are rejected for the same reasons as claims 36-45 above.

31. Regarding claim 56, it is the computer program product claim of claims 36 above. Therefore it is rejected for the same reasons as claim 36 above.

Response to Arguments

32. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

33. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric C. Wai whose telephone number is 571-270-1012. The examiner can normally be reached on Mon-Thurs, 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng - Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Meng-Ai An/
Supervisory Patent Examiner, Art Unit 2195

/Eric C Wai/
Examiner, Art Unit 2195